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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,882	01/30/2001	Chuan-Bao Wang	00250	2679

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EXAMINER

SINES, BRIAN J

ART UNIT	PAPER NUMBER
1743	6

DATE MAILED: 12/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

6KB

Office Action Summary	Application No.	Applicant(s)	
	09/771,882	WANG ET AL.	
	Examiner	Art Unit	
	Brian J. Sines	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 26 September 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-14 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____.
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 4 and 6 – 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (U.S. Pat. No. 4,246,228). Regarding claim 1, Jones et al. teach a combustible gas detection element comprising an electric heating element or filament having a first coating layer, comprising a pellet with a precious metal oxidation catalyst supported on a porous oxide, such as zeolite; and a second coating layer overlaying the first coating layer, which acts as a molecular filter, wherein the second layer comprises a catalytic compound supported on a porous oxide comprising zeolite as well (see col. 1, line 1 – col. 2, line 28). Regarding claim 2, Jones et al. teach that the catalytic compound may consist of metal-loaded zeolites, such as zeolite incorporating palladium or platinum (see col. 1, lines 38 – 56). Regarding claim 3, Jones et al. teach the use of alumina as a ceramic carrier material (see col. 1, lines 38 – 44). Regarding claim 4, Jones et al. teach that the heating element (6) comprises a helical filament heater (see col. 2, lines 11 – 28; figure 1). Regarding claim 6, Jones et al. teach that the catalytic compound of the second coating layer is in solid form (see col. 1, lines 45 – 51). Regarding claim 7, Jones et al. teach that the catalytic compound, such as platinum and palladium, are in powder form (see col. 1, line 66 – col. 2, line 3). Regarding claim 8, Jones et al. teach the incorporation of additional layers (see col. 1, lines 45 – 51). Jones et al. teach that the second layer effectively acts as a

molecular filter external to the pellet (see col. 1, lines 45 – 51). Regarding claim 10, Jones et al. teach that the external filter layer is formed from a homogeneous mixture resulting in a one-piece, monolithic structure (see col. 1, lines 45 – 51). Regarding claim 11, Jones et al. teach that the second coating layer may comprise multiple layers comprising a precious metal catalyst, such as platinum or palladium, supported on a porous oxide comprising zeolite (see col. 1, lines 38 – 56). Regarding claim 12, Jones et al. teach the further incorporation of a compensating element (see col. 2, lines 29 – 62). Regarding claim 13, as shown in figure 2, Jones et al. teach an electrical circuit to which the sensing element and the compensating element are connected (see col. 2, lines 29 – 62). Regarding claim 14, as shown in figure 2, Jones et al. teach a balanced or wheatstone bridge circuit.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (U.S. Pat. No. 4,123,225) in view of Cheng et al. (U.S. Pat. No. 5,670,115). Jones et al. teach that the heating element (6) comprises a helical filament heater (see figure 1, col. 2, lines 11 – 28). Jones et al. is silent to the teaching of incorporating a heating element comprising an electric film heater. Cheng et al. do teach the incorporation of an electric film heater (52) with a gas sensor (30) (see col. 7, lines 51 – 62; figure 5). As evidenced by Jones et al. and Cheng et al., both of these heating elements are considered functional equivalents recognized in the prior art (see MPEP § 2144.06). The Courts have held that an express suggestion to substitute one equivalent component or process for another is not necessary to render such a substitution obvious. See *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). Furthermore, the Courts have held that the change in form or shape is an obvious engineering design. See *In re Dailey*, 149 USPQ 47 (CCPA 1976). Therefore, it would have been obvious to one of ordinary skill in the art to incorporate an electric film heater, as taught by Cheng et al., with the gas detector, as taught by Jones et al., in order to provide more effective heating control to the sensor due to the difference in heat transfer properties afforded by the shape and surface area of the heater in the form of a film, rather than a helical wire configuration, depending upon the shape of the gas sensor.

Response to Arguments

Applicant's arguments filed 9/26/2003 have been fully considered but they are not persuasive.

The amendment to the independent claims reciting that “a second layer overlaying the first layer, and comprising a catalytic compound which is not substantially active toward combustible gases, but which provides sites which are reactive with and which are capable of

trapping gases and vapors which poison the precious metal catalyst," is considered a functional limitation. In a claim drawn to an apparatus statutory class of invention, a functional limitation may not be divorced from any specifically recited structure or composition. A functional limitation is an attempt to define an apparatus by what it does, rather than by what it is, *as evidenced by its specific structure* (emphasis added) (see MPEP § 2173.05(g)). Regarding product and apparatus claims, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (see MPEP § 2112.01). The Courts have held that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). The Courts have held that apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. See *In re Danley*, 120 USPQ 528, 531 (CCPA 1959); and *Hewlett-Packard Co. V. Bausch and Lomb, Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (see MPEP § 2114).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (703) 305-0401. The examiner can normally be reached on Monday - Friday (11:30 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (703) 308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jill Warden
Supervisory Patent Examiner
Technology Center 1700